



# ***FY 1999 Technology Deployment in Environmental Management***

## ***Engineering Tomorrow's Solutions Today***

**Site Technology Coordination Group / Technology Deployment Center  
U.S. Department of Energy, Idaho Operations Office**



# ***Enhanced In Situ Bioremediation***

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***Problem:*** Cost effective groundwater treatment.

***Baseline Technology:*** Traditional pump and treat.

***Innovative Technology:*** Enhanced In Situ Bioremediation increases the degradation of contaminants by the indigenous microorganisms through manipulation of substrates or nutrients such as lactate necessary for microbial growth, and alteration of groundwater flow to prevent migration of contaminants outside the treatment area.

***Comparison:*** Significantly reduced remediation time and no generation of secondary waste streams because contaminants are transformed or immobilized in place.

***Benefits:*** Results have shown accelerated degradation of trichloroethylene (TCE) to desired ethene relative to traditional pump and treat technology (air stripping). In addition, there is reduced worker risk, and decreased waste management costs associated with traditional pump and treat technology.

TMS#: 2410



# ***Enhanced In Situ Bioremediation***



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